

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A stabilizer control apparatus for controlling a torsional rigidity of a stabilizer disposed between a right wheel and a left wheel of a vehicle, to control a rolling motion of a vehicle body actively in response to a turning state of said vehicle, comprising:

wheel stroke detection means for detecting a relative displacement between said vehicle body and said right and left wheels for at least one of a front axle and a rear axle of said vehicle;

wheel stroke difference calculation means for calculating at least one of a difference between right and left wheel strokes and a difference between right and left wheel stroke velocities, on the basis of the result detected by said wheel stroke detection means;

externally applied force setting means for setting an externally applied force for controlling the torsional rigidity of said stabilizer, on the basis of the result calculated by said wheel stroke difference calculation means, when said vehicle is traveling straight, and the externally applied force which is set based on the result calculated by said wheel stroke difference calculation means being decreased when said vehicle is traveling in the turning state.

2. (Original) A stabilizer control apparatus as set forth in claim 1, wherein said externally applied force setting means sets the externally applied force on the basis of a desired value for decreasing a roll rigidity, said desired value for decreasing the roll rigidity being determined on the basis of said difference between right and left wheel strokes.

3. (Original) A stabilizer control apparatus as set forth in claim 1, wherein said externally applied force setting means sets the externally applied force, on the basis of a desired value of roll damping force, said desired value of roll damping force being determined on the basis of said difference between right and left wheel stroke velocities.

4. (Original) A stabilizer control apparatus as set forth in claim 1, wherein said externally applied force setting means sets the externally applied force, on the basis of a desired value for decreasing a roll rigidity, said desired value for decreasing the roll rigidity being determined on the basis of said difference between right and left wheel strokes, and a desired value of roll damping force, said desired value of roll damping force being determined on the basis of said difference between right and left wheel stroke velocities.

5. (Original) A stabilizer control apparatus as set forth in claim 1, wherein said externally applied force setting means sets the externally applied force, on the basis of a desired value for decreasing a roll rigidity, said desired value for decreasing the roll rigidity being determined on the basis of said difference between

right and left wheel strokes, a desired value of roll damping force, said desired value of roll damping force being determined on the basis of said difference between right and left wheel stroke velocities, and a desired value of active roll moment of said vehicle.

6. (Original) A stabilizer control apparatus as set forth in claim 5, wherein said externally applied force setting means sets the externally applied force, according to the following equation:

$$R_t = R_m - K_5 \cdot R_r(St) + K_6 \cdot R_d(dSt)$$

wherein,

R_t : externally applied force

R_m : desired value of active roll moment of a vehicle

$R_r(St)$: desired value for decreasing roll rigidity determined on the basis of a difference between right and left wheel strokes

$R_d(dSt)$: desired value of roll damping force determined on the basis of a difference between right and left wheel stroke velocities

K_5, K_6 : control gain

St : difference between right and left wheel strokes

dSt : difference between right and left wheel stroke velocities

7. (Currently Amended) A stabilizer control apparatus for controlling a torsional rigidity of a stabilizer having a stabilizer bar disposed between a right wheel and a left wheel of a vehicle, to control a rolling motion of a vehicle body actively in response to a turning state of said vehicle, comprising:

wheel stroke detection means for detecting a relative displacement between said vehicle body and said right and left wheels for at least one of a front axle and a rear axle of said vehicle;

wheel stroke lateral difference calculation means for calculating a difference between right and left wheel strokes on the basis of the result detected by said wheel stroke detection means;

externally applied force setting means for setting an externally applied force for controlling the torsional rigidity of said stabilizer, on the basis of the result calculated by said wheel stroke lateral difference calculation means; and

turning factor setting means for setting a turning factor indicative of the turning state of said vehicle, wherein said externally applied force setting means decreases said torsional rigidity of said stabilizer bar being decreased to be lower than a value inherently provided for said stabilizer bar, according to the externally applied force set by said externally applied force setting means, in response to when the turning factor set by said turning factor setting means is smaller than a predetermined value, and wherein said externally applied force setting means decreases said externally applied force when said turning factor is larger than the predetermined value.